REMARKS

Claims 1-5, 7-14 and 16-29 are pending in the application. All claims stand rejected. Specifically, claims 1-5, 7-9, 12-14, 16-18, 21-22 and 25-27 stand rejected under 35 U.S.C. §1-3 as being obvious in view of Ravini, U.S. Patent No. 5,979,581 and Ghoneim, U.S. Patent No. 6,205,391. Claims 11-12, 19-20, 23-24 and 28-29 stand rejected under §103 in view of Ravini, Ghoneim, and further in view of Yasui, U.S. Patent No. 5,373,911. Claims 23 and 29 also stand rejected under §103 in view of Ravini, Ghoneim and Nagaoka, JP 07-320188.

With regard to the rejections under 35 U.S.C. §103 which all rely upon Ravani, Applicants traverse. The Ravani disclosure is directed towards an apparatus and method for automatic vehicle lane-keeping. That is, Ravani discloses a system for maintaining a vehicle within its lane such as when operated in a cruise control mode. The system uses a laser sensor to detect three points on the reflective paint stripes on the road to estimate the position of the lane centerline relative to the vehicle. Small steering corrections are then made to maintain the vehicle within its proper position within the lane. Critically, however, the entirety of the Ravani reference is directed toward implementing a system wherein the vehicle is operated well within its dynamic limits. Accordingly, there is no discussion whatsoever of operating the vehicle when it is in an understeer or oversteer condition. Indeed, as recognized in the Office Action, the initial steering wheel input is zero in the Ravini disclosure. Further, the steering angle feedback is all based upon a simple bicycle model which, as noted in the Ravani reference, is invalid for lateral accelerations above approximately 0.3 g (see Column 7, lines 23-29). Thus, Ravini is clearly unrelated to the subject matter of the present claims which all require an understeering condition.

In contrast to Ravini, the entirety of the present disclosure is directed toward a vehicle dynamics behavioral model wherein the vehicle is operated at or near its dynamic limit. In particular, each of independent claims 1, 12 and 21 require that certain steps be performed "when the vehicle model is understeering" which the Ravani reference does not disclose or suggest. In this regard, the claims have been amended to recite a "non-zero" initial steering wheel angle input. In each of independent claims 1, 12 and 21, the understeering condition is determined as a function of the yaw

acceleration being greater than a threshold and an increasing steering wheel angle. In Ravani, the "vehicle dynamic model used for the control design and subsequent simulation is the well-known simple 'bicycle' model with the linear non-dynamic tire model". (Column 5, lines 57-59). In explaining the vehicle dynamic model of Ravani, the reference mentions vehicle yaw rate, however, yaw acceleration forms no part of the control basis of the model of Ravani. For this reason alone, Applicants request that the rejections under 35 U.S.C. §103 be withdrawn because Ravani, either alone or in combination, does not suggest performing the claimed method steps when the vehicle is understeering as determined by the yaw acceleration being greater than the threshold and an increasing steering wheel angle.

Further, with respect to independent claim 1, the Ravani reference fails to disclose or suggest the Applicants' method step of when the vehicle model is understeering, operating the computer model with the initial non-zero steering wheel angle input until an error of the first steering wheel angle and the initial steering wheel angle is decreasing. Nor does Ravani disclose or suggest that when the error decreases, operating the computer model with the first steering wheel angle input. The same features are recited in independent claim 12. The Office Action's reliance upon Figures 6B and 6D of Ravani do not support the rejections. The only clear explanation of what is shown in those figures establishes that the vehicle model is not in an understeering situation, as required by the present claims. For this additional reason, the rejections under 35 U.S.C. §103 should be withdrawn. Independent claim 20 should be allowable for at least the same reasons.

Further, as admitted in the Office Action, Ravini does not disclose operating the computer model with an initial steering wheel angle until the error is decreasing when the vehicle is understeering, or the controller determining when the vehicle model is understeering in response to a yaw acceleration greater than a threshold and an increasing steering wheel angle. Applicants traverse the suggestion, however, that one of skill in the art would be motivated to modify Ravini in view of Ghoneim to provide these claimed features. As mentioned above, the Ravini reference is a simple lane-following vehicle control scheme. The entire scheme of Ravini is admittedly invalid for a control scheme for a vehicle experiencing understeer or oversteer conditions. Thus,

yaw and roll, for example, would not be considerations for a control scheme where the vehicle is operated well within its dynamic limits. Accordingly, no valid reason has been shown as to why one of ordinary skill in the art would modify Ravini in view of Ghoneim to arrive at the claimed invention. The fact that one of skill in the art has the capabilities to modify the prior art is not the test for whether one of skill in the art would have modified the art in view of the reference teachings. *Ex Parte Levengood*, 28 USPQ2d 1300, 1301-1302 (BPAI 1993). The focus must remain on what the prior art suggested to one of skill in the art at the time of the invention. Neither Ravini nor Ghoneim suggest the Applicants' claimed invention. Thus, for these additional reasons, all of the rejections which rely upon the combination of Ravini and Ghoneim should be withdrawn.

Having overcome all of the objections and rejections set forth in the Office Action, Applicants submit that claims 1-3, 7-12 and 16-29 are in a condition for allowance. A Notice of Allowance indicating the same is therefore earnestly solicited. The Examiner is invited to telephone the Applicants' undersigned attorney at (248) 223-9500 if any unresolved matters remain.

Respectfully Submitted,

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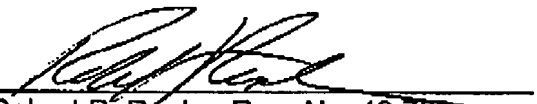

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